GOT MATH? – Morgan Co. Students Learn Geometry Via Joint Partnership Endeavor

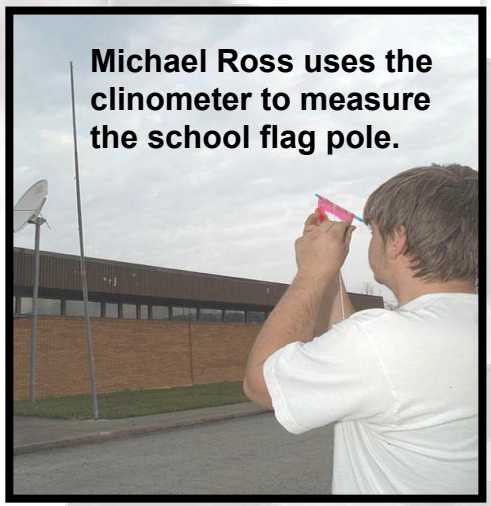
Educators are continually faced with finding solutions to challenging problems. When conventional teaching methods don't produce the desired results, then it is time to look at alternate teaching and delivery techniques to help students reach and meet established standards. The partnership among Morgan Co. ATC Principal Bob Martin; Ron Woods, drafting teacher and Morgan Co. H.S. Math Department Chair Pam Holbrook has turned a challenging situation into a "get well" math plan – one that has provided a positive outcome for educators and spurred the interest of many students.

Morgan Co. ATC Drafting Teacher Ron Woods instructs Morgan Co. H.S. senior James Oldham on how to use a clinometer. Morgan Co. H.S. Math Department Chair Pam Holbrook (seated in the yellow shirt) is busy helping others get ready to measure the school flag pole using the clinometer made in the classroom.

Students in local school districts across the state sometimes have difficulty in learning math - Morgan Co. students are no different. When Pam Holbrook became aware that students were failing geometry, she knew it was time to get something in motion to correct the problem. About the same time, Bob Martin and Ron Woods were exploring ways to get students interested in the drafting program offered at the ATC. In this case, the timing was perfect to recognize and blend the two concerns for a positive outcome.

Pam Holbrook (far right) instructs Brittany Stacy (senior) and Ashley Cochran (junior) how to read the angle on the protractor.

After a consultation meeting which included Holbrook, Martin, Woods, Morgan Co. H.S. Principal Addison Whitt and Anita Frederick, counselor; a plan was formulated to incorporate drafting and geometry into a "team teaching" project. The next step was to look at the curriculum of both courses and make necessary adjustments between theory and application. All were willing to give this scenario a try and the new program was launched in the fall of 2002.



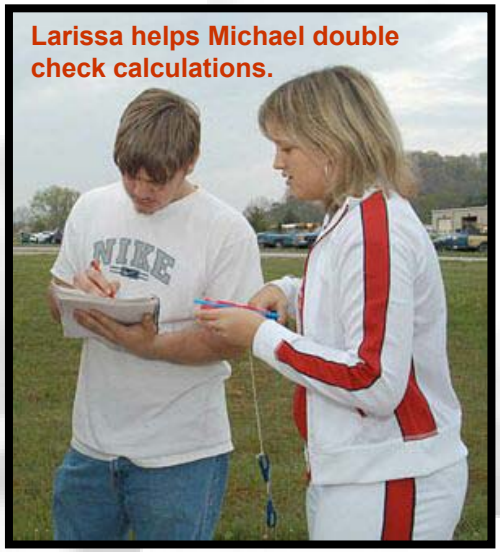
Michael Ross uses the clinometer to measure the school flag pole.

"I enjoy this class because the teachers are nicer and we get more help. You have more hands-on activities to learn the material," says Morgan Co. H.S. senior Michael Ross. "This applied geometry class has helped me understand how to fix or repair something in my welding and auto mechanics classes too."

Pam Holbrook and Ron Woods jointly partner by teaching geometry principles through drafting applications. This has been accomplished because both teachers have taken the time to work together on lesson plans and teaching strategies. True collaboration takes place as each brings their expertise to the table through the integration of academic and technical coursework. To further compliment the arrangement, Holbrook goes to the ATC each day for the entire 1st block (a total of 1 ½ hours). This has been well received by students throughout the district.

"Students who are enrolled in the applied geometry class are at an advantage because of the collaboration with drafting. The focus of the class is to have students participate in practical applications using basic geometric ideas," says Holbrook. "By using teachers with math and drafting backgrounds, we are finding that students are better able to learn by using both practical and technical math skills."

Photo at right: Welding Instructor Scott Linkous and Pam Holbrook explain how to square up a trailer using the Pythagorean Theorem.
Top: A student makes calculations about the height of the flag pole based on information using the clinometer.
Corner: Ron Woods provides one-on-one help to Ashley Cochran.



Larissa helps Michael double check calculations.

In addition to both instructors, Larissa Fugate, a Morgan Co. H.S. senior serves as a math assistant through the UK Excel Program. Fugate, who has plans to become a math instructor, is paid a stipend through a National Science Foundation (NSF) grant and is given credit for math co-op.

"To me, this team teaching environment helps kids to understand how geometry can help them in the real world," says Fugate. "The teachers go into a great deal of detail to explain the principles using practical applications."

"This partnership has created a win-win situation for students. Each student can receive the geometry credit for graduation as well as a math credit that transfers to KCTCS," says Bob Martin. "My own daughter took this class and it helped her to better understand geometry."

Morgan Co. ATC Principal Bob Martin and Holbrook look on as students use the trigonometry tangent ratio to calculate their results of finding the height of the school flag pole.

As part of the incentive for taking this class, students have an opportunity to receive a required geometry credit for successfully completing the drafting class. Now, administrators are seeing mathematically challenged students enrolled in the drafting/applied geometry class experience success in passing this required course for graduation.

"When Pam first came over to our school and saw how our teaching styles differed in terms of an academic approach vs. the practical application, we both realized this was a perfect opportunity to adapt our best practices to achieve success for the kids," says Ron Woods.

"One of the major reasons I like teaching this way is because you can see a change of attitude in the students toward mathematics as they apply the concepts to the real world," says Holbrook. "Another advantage is that kids are out of their seats doing activities, but they are talking about math."

"I think this is a good program because it has practical applications and many kids have a picture in addition to the academic theory presented in class and because of this method, they get it! What I want these kids to understand is that it's not a shame to forget a formula, but it's more important to understand how and why it works and to know where to find it. From my perspective, there is success in this joint venture because **we break it down so kids can understand it in their world – isn't that what it's all about?"**

Welding Instructor Scott Linkous explains the Pythagorean Theorem by using the practical application of having students frame up a trailer.

"I'm not a math person myself, but taking this class has helped me understand more about this subject because my teachers explain and show me how easy math can be," says Eddie Howard, a Morgan Co. H.S. junior.

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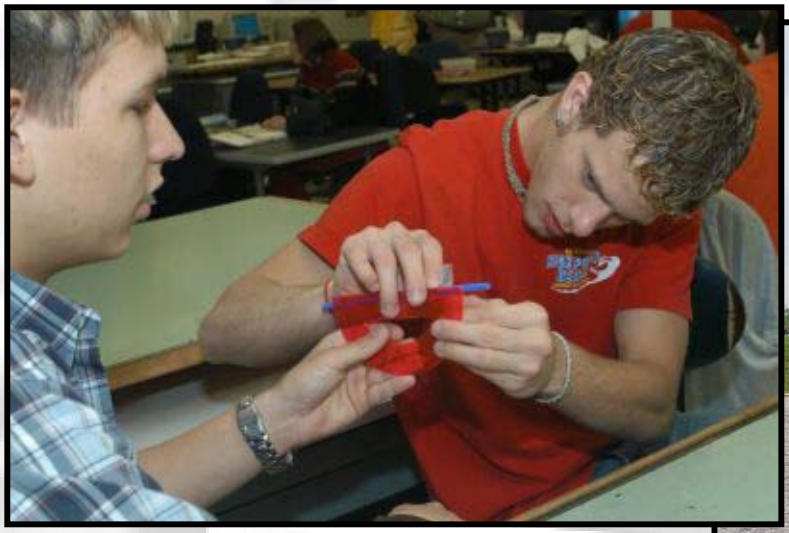

"This innovative project has worked very nicely from our perspective. We have seen an increase in the drafting program enrollment as a result of kids enjoying this course as well as the fact that more kids are passing geometry," says Martin. "This partnership has created a win-win situation for all concerned and I'm pleased that we have been able to work together to offer this avenue for students."